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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CORRIGAN, JOSEPH JAMES	
ART UNIT	**PAPER NUMBER**
3709	
MAIL DATE	**DELIVERY MODE**
05/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/529,154	UMENO, YOSHIHISA	
	Examiner	Art Unit	
	joseph corrigan	3709	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/17/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

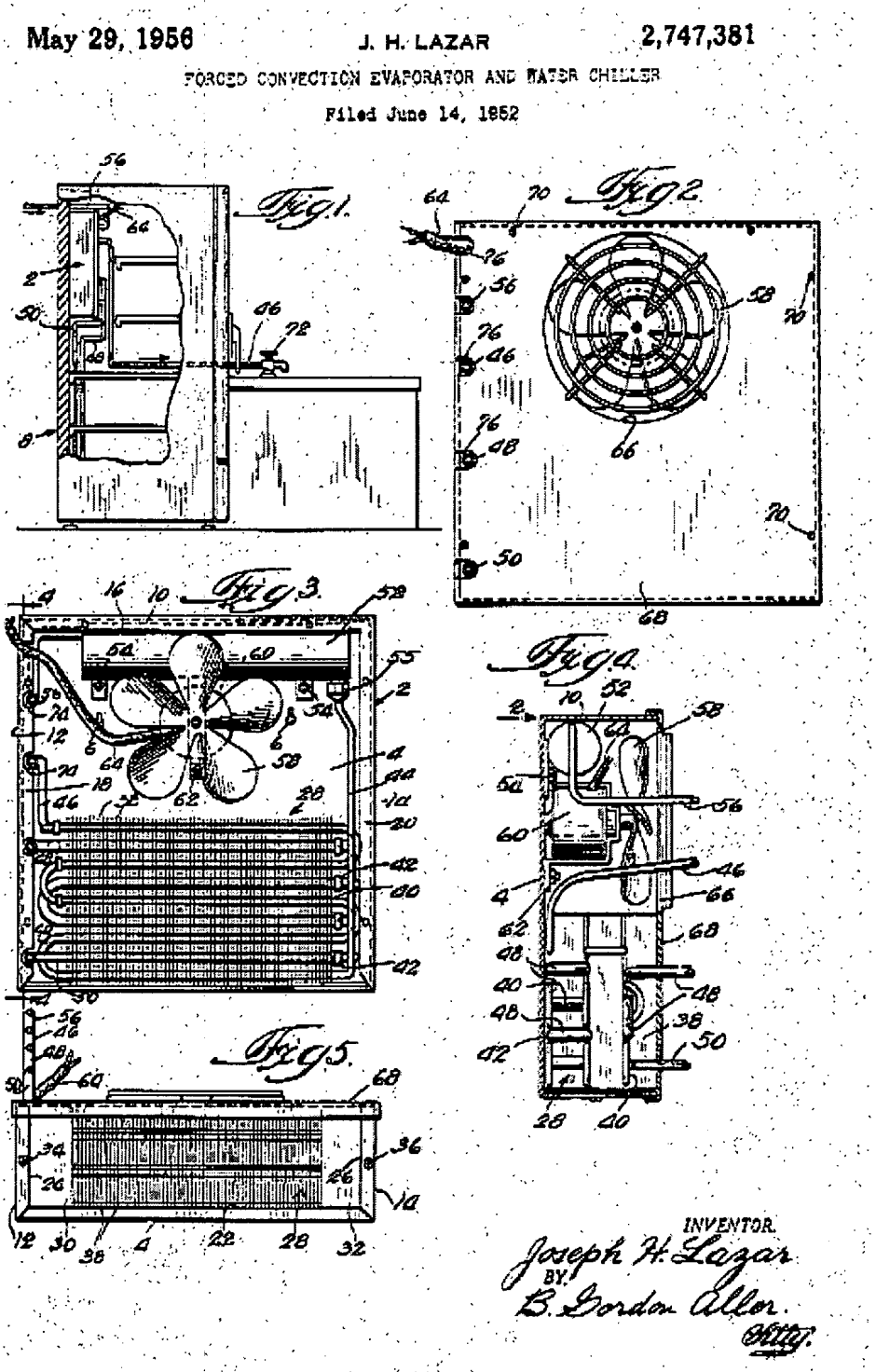
1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> > (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1-3, 6, 8,10 rejected under 35 U.S.C. 102(b) as anticipated by J. H. Lazar '2,747,381'.



4. In re claim 1, J. H. Lazar discloses the claimed invention:

- ***A cooler provided on at least one side-wall side of a chamber formed with a thermally insulated box (see fig. 4).***
- ***A cooling chamber in front of the cooler (fig. 4).***
- ***A fan that allows air in the cooling chamber to flow (see fig. 2).***
- ***Wherein the cooler and the cooling chamber are partitioned by a partition so as to allow cold air to be accumulated in the cooler (see fig. 4).***
- ***The fan is disposed on a side of a cooler relative to the partition (see fig. 4).***
- ***The partition in front of the fan has an aperture formed in the flat sheet portion (see fig. 2).***
- ***An open space is formed between the fan and the flat sheet portion in which the aperture is formed (see fig. 4).***
- ***Cold air accumulated in a space inside the partition and hot air in the cooling chamber are exchanged by the fan through the aperture (as stated in column 2 lines 42-43 "This circulating system provides efficient refrigeration within the refrigerator 8 ...".***

5. In re to claim 2, J. H. Lazar discloses in fig. 2 that dimensions of the aperture are larger than a diameter of the fan.

6. In re to claim 3, J. H. Lazar discloses in fig. 4 that when viewing the fan in a direction of a rotation shaft of the fan, the fan is disposed in the aperture and there is an open space outside the fan.

7. In re to claim 6, J. H. Lazar discloses in fig. 3, the fan is disposed above the cooler.

8. In re. to claim 8, J. H. Lazar discloses that a slit [opening] is formed in the partition at a portion opposed to the cooler or a portion below the cooler (see fig 5). Since applicant does not teach in specification that "slit" type opening is required, e.g. it's restrictive nature, prior art depicts preferred embodiment with open bottom satisfying claim.

9. In re to claim 10, J. H. Lazar discloses that a safety cover is put over the [fan] aperture using a net or a slit (see fig. 2).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claim 4, 5 & 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over J. H. Lazar '2,747,381' in view of Scofield "2,957,067".

12. In re claim 4, J. H. Lazar discloses the claimed invention as described above, however, J. H. Lazar does not disclose that the rotation of the fan generates a discharge flow of cold air discharged from the cooler to the cooling chamber through the aperture and a sucked flow of air sucked from the cooling chamber to the cooler through the aperture.

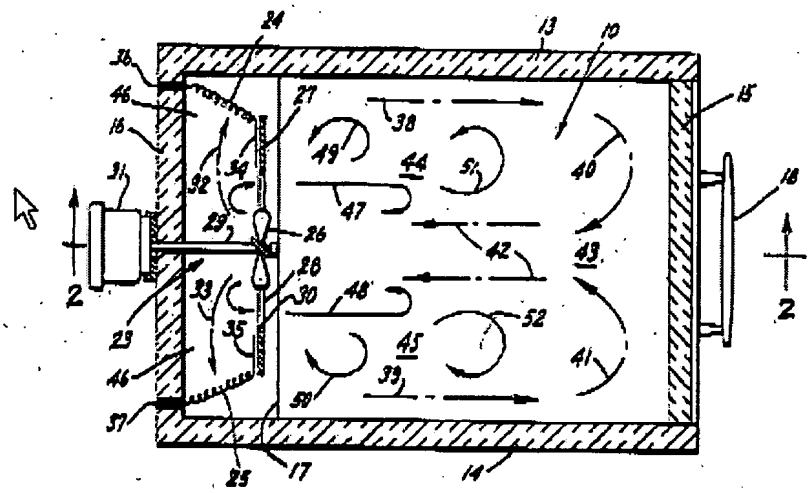


FIG. 1.

Scofield Patent # 2,957,067

13. Nevertheless, Scofield teaches (fig.1 above) and in column 4, lines 13-27 "[using an oversized fan aperture 28] "..... In normal operation the air of said streams is reasonably hot [cold], although such air may be slightly cooler [warmer] than the air of forward currents 38,39, the thermal gradient being due to inherent and unavoidable radiation of heat from the extended surfaces of flat oven 10 [refrigerator]. It will thus be

seen that returning or short-circuiting airflows 47,48 contribute substantially to the desired affect of additional heating [cooling] to areas 44,45 into which they circulate.

14. In addition, the introduction of such return currents 47, 48 causes added heating [cooling] of said areas 44, 45 and consequently, satisfactory heat equalization between all oven [refrigerated] areas, by the inherent creation of eddies 49, 50, 51, 52 along the boundaries of counter current air flows 47, 38 and 48, 39. Such eddies deflect heated [cooled] air, of maximum [minimum] temperature, from the currents 38, 39 which flow alongside walls 13, 14, and the deflected hot [cold] air is then diffused by such eddies In areas 44, 45. Thus the jet-like and compact form of said hot [cold] air currents 38, 39 is largely destroyed and there is created, in effect, the equivalence of an air guiding and distributing structure, in the area receiving heated [cooled] air, equivalence being provided by the mere employment of oversize fan aperture 28, in the area wherefrom air is supplied by the heaters [coolers]."

15. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have used an air flow system taught by D. W. Scofield to modify J. H. Lazar in order to create a more subtle temperature gradient in the cooling chamber.

18. In re claim 5, D. W. Scofield (see fig. 1) teaches that using an oversized fan aperture one can create eddy currents to in effect "... deflect heated air ... " as stated in

column 4, line 18, which is analogous to suppressing flow speed of cool air in a cooling system.

19. In re to claim 7 & 9, D. W. Scofield teaches that a fan application with an area of the aperture S and a diameter of the fan R, the following relationship

$$1.5\times\pi(R/2)^2 \leqq S \leqq 2\times\pi(R/2)^2$$

can be satisfied by modifying J. H. Lazar to reflect this design criteria. As stated in column 3 lines 8-10, "It may briefly be said that the fan desirably covers, when rotating, only about 65% of the area of the aperture." In terms of applicants above proportionality equation it is equivalent to 1.54 within optimum range of the 1.5 to 2.0 target. Also, regarding ".... plurality of combinations of fan and aperture" restriction in claim 7 it is assumed that applicant is broadening claim by including the many possibilities of aperture and fan combinations that fall within the range of above stated proportionality equation. Since Scofield's optimum design falls into this range it can be said that increasing proportion to the high side of the equation will too meet Scofield's design criteria.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **US 2,747,381** discloses a cooling system with many of the same features of the claimed apparatus. **US 2,957,067** discloses an appliance with identical air flow characteristics as claimed apparatus. **US 3,365,118** discloses a cooling device

which has practically all the same features as the applicant's invention except the fan aperture opening shape. **US 7,118,333** discloses a cooling device for electronics with an oversized fan aperture opening similar to claimed apparatus. **US 3,359,751** discloses a refrigerator having a cooling fan with applied grill across partition opening as specified in applicant's invention. **US 5,819,552** discloses a refrigeration system with unique airlow features similar to claimed invention. **US 2,993,349** discloses a refrigeration display case with a multiple fan cooling system with similar airflow characteristics as claimed invention. **US 5,157,935** discloses a hot gas defrost system that attempts to suppress frost on cooling coils without the use of a heater as does claimed invention with unique airflow abilities. **US 3,379,029** discloses a cooling system similar to many features in claimed invention. **US 6,579,063** discloses a cooling system featuring a fan covered with shroud attempting to accomplish many qualities of claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph J. Corrigan whose telephone number is 571-270-3213. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Nguyen can be reached on (571) 272-4491. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joseph J Corrigan
Examiner
Art Unit 3744

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GEORGE B. NGUYEN
SUPERVISORY PATENT EXAMINER